UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/496,323	02/02/2000	David V. James	50N3440/1243	6052

7590   09/14/2004

Gregory J Koerner
Simon &Koerner, LLP
10052 Pasadena Avenue
Suite B
Cupertino, CA   95014

EXAMINER
TANG, KENNETH

ART UNIT	PAPER NUMBER
2127	7

DATE MAILED: 09/14/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<table>
<tr><td rowspan="2">Office Action Summary</td><td>Application No.
09/496,323</td><td>Applicant(s)
JAMES ET AL.</td></tr>
<tr><td>Examiner
Kenneth Tang</td><td>Art Unit
2127</td></tr>
</table>

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>06 July 2004</u>.

2a)☒ This action is **FINAL**.   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-42</u> is/are pending in the application.

     4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>1-42</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on <u>02 February 2000</u> is/are: a)☒ accepted or b)☐ objected to by the Examiner.

     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

     a)☐ All   b)☐ Some *   c)☐ None of:

       1.☐ Certified copies of the priority documents have been received.

       2.☐ Certified copies of the priority documents have been received in Application No. _____.

       3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

     * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>6/11/01</u>.

4)☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____.

DETAILED ACTION

1.   This action is in response to the Amendment in 7/6/04.

2.   Claims 1-42 are presented for examination.

3.   The Examiner is confused with regards to the alleged June 2, 2004 Examiner Interview

stated on page 18 of the Remarks on 7/6/04. According to the records of the Office, no interview

was scheduled and no Interview Summary was entered by the Examiner (a requirement after an

actual interview). Examiner Kenneth (not Kevin) Tang does not recall discussing or having an

interview with Gregory Koerner with respects to this application. Remarks regarding the alleged

interview will not be considered.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the
> subject matter which the applicant regards as his invention.

4.   Claims 1-42 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for

failing to particularly point out and distinctly claim the subject matter which applicant regards as

the invention:

    a.   The following term is indefinite:

        i.   In claims 1, 21, 41, and 42, "from device software" is indefinite because it

        is not made clear in the claim language where the device software is coming from,

        being that there wasn't even a device introduced into the system.

ii.   In claims 4 and 24, "a device" is indefinite because it is not made

explicitly clear in the claim language whether this device is supposed to be the

one that contained the device software as stated in claim 1 (and 21), or if this

device is independent and distinct from that.

iii.   In Claims 11 and 31, the terms "scheduling request" and "request

parameters" are indefinite because it is not made specifically clear where the

request originated from.

b.   Claims 1, 21, 41, and 42 recite the limitation "from device software". There is

insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5.   Claims 1-9, 12-13, 20-29, 32-33, and 40-42 are rejected under 35 U.S.C. 103(a) as

being unpatentable over Lehtinen (US 2004/0040025 A1) in view of Shaw et al. (hereinafter

Shaw) (US 6,424,989 B1).

6.   As to claim 1, Lehtinen teaches a system for effectively performing a scheduling

operation *(see Abstract)*, comprising:

- an allocation manager configured to handle a scheduling request by analyzing a request *(page 2, [0009])*;

- a scheduling manager configured to schedule a task that is authorized by said allocation manager *(see claim 5)*; and

- a processor for controlling said allocation manager and said scheduling manager to thereby perform said scheduling operation *(page 1, [0002])*.

7.   Lehtinen does teach a Resource Allocation Manager that analyzes the resource allocation situation from the device request *(page 2, [0009])* but fails to explicitly teach the parameters of the request are being analyzed from software of a device. However, Shaw teaches a single or plurality of devices using software to send request signals for resource allocation and that the parameters of the request signal being analyzed as to whether an operation/process is to be made *(col. 26, lines 27-47)*. It would have been obvious to one of ordinary skill in the art at the time the invention was made to include the feature of the parameters of the request are being analyzed from software of a device to the existing system of Lehtinen in order to increase the control of the system by determining when to execute the process of a device *(col. 26, lines 27-47)*.

8.   As to claims 2 and 22, Lehtinen fails to explicitly teach wherein said task includes one or more isochronous processes that require a deterministic and guaranteed performance. However, it is well known in the art and obvious that processes can be finite/deterministic and delivered within a certain time constraint. In operating systems task management, it is time slicing.

9.   As to claims 3 and 23, Lehtinen fails to explicitly teach wherein said scheduling

operation is performed in an electronic network that is implemented according to an IEEE Std

1394 serial bus interconnectivity standard. However, it is obvious to combine the feature of an

IEEE Std 1394 serial bus interconnectivity standard because it is a standard in bus

interconnectivity.

10.   As to claims 4 and 24, Lehtinen fails to teaches wherein said task is performed on a

device that includes one of a consumer-electronics device, an audio-visual device, a set-top box

device, and a computer device *(page 1, [0003])*.

11.   As to claims 5 and 25, Lehtinen teaches wherein said task includes one of a data transfer

operation, a processor operation, a memory-access operation, and a signal-processing operation

(see Fig. 1).

12.   As to claims 6 and 26, Lehtinen teaches wherein said request parameters include at least

one of a resource requirement and an execution interval for performing said task *(page 3,

[0018]-[0019])*.

13.   As to claims 7 and 27, Lehtinen teaches wherein device software issues said scheduling

request to said allocation manager for scheduling said task *(page 4, [0032])*.

14.   As to claims 8 and 28, Lehtinen fails to explicitly teach wherein said allocation manager

analyzes said resource requirement to limit total allocated device resources to one-hundred

percent of available device resources. However, it is obvious that the resource requirement has

to be limited to 100% because it is not possible for it to be higher.

15.   As to claims 9 and 29, Lehtinen teaches wherein said scheduling operation is

synchronized to a base cycle that serves as a timing reference for performing said task, said base

cycle forming part of a contiguous base cycle sequence *(Fig. 1, items 11, and 3)*.

16.   As to claims 12 and 32, Lehtinen teaches wherein said allocation manager analyzes said

scheduling request and returns one of an error message or a request grant message *(page 6,*

[0044]).

17.   As to claims 13 and 33, Lehtinen teaches wherein said allocation manager adds said task

to a task table along with at least one of said resource requirement and said execution interval

("Resource Allocation Table RAT", page 4, [0031]).

18.   As to claims 20 and 40, Lehtinen teaches wherein said scheduling operation includes a

plurality of tasks that are scheduled to execute in a sequence in which only one of said plurality

of tasks may execute at any given moment *(page 1, [0003])*.

19.   As to claims 21 and 41-42, Lehtinen teaches a system, computer-readable medium and

method for effectively performing a scheduling operation, comprising the steps of:

-   handling a scheduling request by analyzing a request with an allocation manager *(page 2,*

    [0009]);

-   utilizing a scheduling manager to schedule a task that is authorized by said allocation

    manager *(see claim 5)*; and

-   controlling said allocation manager and said scheduling manager with a processor to

    thereby perform said scheduling operation *(page 1, [0002])*.

20.   Lehtinen does teach a Resource Allocation Manager that analyzes the resource allocation

situation from the device request *(page 2, [0009])* but fails to explicitly teach the parameters of

the request are being analyzed from software of a device. However, Shaw teaches a single or

plurality of devices using software to send request signals for resource allocation and that the

parameters of the request signal being analyzed as to whether an operation/process is to be made

(col. 26, lines 27-47). It would have been obvious to one of ordinary skill in the art at the time

the invention was made to include the feature of the parameters of the request are being analyzed

from software of a device to the existing system of Lehtinen in order to increase the control of

the system by determining when to execute the process of a device *(col. 26, lines 27-47)*.

21.   **Claims 10 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over**

Lehtinen (US 2004/0040025 A1) in view of Shaw et al. (hereinafter Shaw) (US 6,424,989

B1), and further in view of Pearson (US 5,276,684).

22.   As to claims 10 and 30, Lehtinen teaches an allocation manager analyzing an execution

interval but fails to explicitly teach wherein said allocation manager analyzes said execution

interval to ensure that an execution interval duration T conforms to a symmetrical

execution-interval specification requirement. However, Pearson teaches that the execution

interval duration can be symmetrical *(col. 6, lines 25-26)*. It would have been obvious to one of

ordinary skill in the art at the time the invention was made to include the feature of having a

symmetrical interval for synchronization purposes.

23.   Claims 14-19 and 34-39 are rejected under 35 U.S.C. 103(a) as being unpatentable

over Lehtinen (US 2004/0040025 A1) in view of Shaw et al. (hereinafter Shaw) (US

6,424,989 B1), and further in view of Binns et al. (hereinafter Binns) (US 6,567,840 B1).

24.   As to claims 14 and 34, Lehtinen teaches wherein said allocation manager assigns a

scheduling priority level to said task *(see claim 5)*. Lehtinen fails to explicitly teach said

scheduling priority level being inversely proportional to said execution interval. However, Binns

teaches that task priorities are assigned inversely with period or deadline *(see Abstract, lines 5-*

7). It would have been obvious to one of ordinary skill in the art at the time the invention was

made to include the feature of scheduling priority level being inversely proportional to said

execution interval to the existing system of Lehtinen in order so that tasks with shorter periods or

deadlines have higher scheduling priorities *(see Abstract, lines 7-12)*. This method provides for

deterministic communication among periodic processes *(see Abstract, lines 7-12)*.

25.   As to claims 15 and 35, Lehtinen teaches wherein said scheduling manager references

said task table to identify said task for scheduling based upon said scheduling priority level *(see*

claim 5).

26.   As to claims 16 and 36, Lehtinen teaches wherein said scheduling manager references a

ready-to-run table to determine whether said task can immediately be scheduled and executed

(see Fig. 2).

27.   As to claims 17 and 37, Lehtinen teaches wherein said scheduling manager schedules and

begins executing said task *(see claim 5).*

28.   As to claims 18 and 38, Lehtinen teaches wherein said scheduling manager references a

resources-consumed table to determine whether said task has consumed all allocated resources,

said scheduling manager terminating said task when an allocated resource limit is reached *(see*

Fig. 2).

29.   As to claims 19 and 39, Lehtinen teaches wherein said processor resets said scheduling

operation when a new base cycle begins *(page 5, [0040]).*

Allowable Subject Matter

30.   Claims 11 and 31 would be allowable if rewritten or amended to overcome the

rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action.

Response to Arguments

31.   In response to the request of the Applicant that the Examiner provide a reference for the

use of Official Notice, the Examiner has provided references of Shaw and Binns as shown in the

rejections of claims 1, 14, 21, 34, 41, and 42.

32.   Applicant argues (on page 17) that the "clock signal" of Pearson is not the same thing as a symmetrical "execution interval" corresponding to a given task. Applicants submit that Pearson nowhere discusses an "execution interval" for performing a given task and that it is not symmetrical.
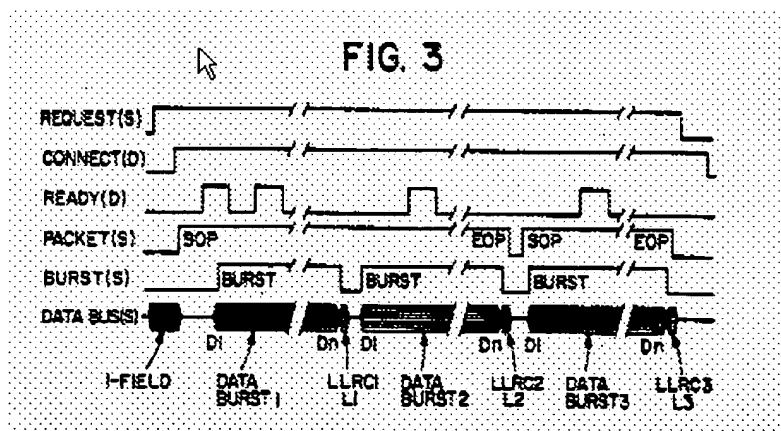
FIG. 3

In response, Examiner respectfully disagrees. First of all, Fig. 3 shows execution

intervals. Pearson states in col. 6, lines 25-29 that what exists but is not shown in Fig. 3 is a

CLOCK Signal **defined to be a symmetrical signal having a period (interval)** of 40

nanoseconds which is employed to synchronously time the transmission data words and the

various control signals. The clock signal is what generates the symmetrical signals having the

periods (intervals).

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this

Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a).

Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within TWO

MONTHS of the mailing date of this final action and the advisory action is not mailed until after

the end of the THREE-MONTH shortened statutory period, then the shortened statutory period

will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

however, will the statutory period for reply expire later than SIX MONTHS from the date of this

final action.

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Kenneth Tang whose telephone number is (571) 272-3772. The

examiner can normally be reached on 8:30AM - 6:00PM, Every other Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Meng-Ai An can be reached on (571) 272-3756. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Kt
9/7/04

MENG-AL T. AN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100